

Work-related Musculoskeletal Disorders of the Neck, Back, and Upper Extremity in Washington State, State Fund and Self Insured Workers' Compensation Claims 1993-2001

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WORK-RELATED MUSCULOSKELETAL DISORDERS OF THE NECK, BACK, AND UPPER EXTREMITY IN WASHINGTON STATE, 1993-2001

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REPORT SUMMARY

Objectives This study examines the frequency, incidence rate (rate of new claims per 10,000 full-time equivalent employees (FTEs)), cost, lost time and industry distribution of non-traumatic soft tissue musculoskeletal disorders in Washington State in order to help focus prevention efforts by business, labor and government.

Methods In the current study we examined State Fund workers' compensation claims for general and selected specific hand/wrist, elbow, shoulder, neck and back disorders in 1993-2001. We examined the Self-Insured closed compensable (four or more lost workdays) claims data for general categories because diagnostic codes (ICD-9) were unavailable. We used a prevention index (PI) to rank industries by taking the average rank by incidence rate and rank by number of claims. The focus was on non-traumatic soft tissue musculoskeletal disorders (NTST-MSDs). These NTST-MSDs, when caused or aggravated by work activities, (for example, exposures to frequent or heavy manual handling, awkward postures, forceful or repetitive exertions) are referred to as Work-related MSDs or WMSDs. The lower extremity is not included in this report.

Results Between 1993-2001, there were 375,484 State Fund accepted claims for NTST-MSDs of the neck, back and upper extremity resulting in:

- \$3.0 billion in direct costs
- 26.8% of all State Fund-accepted claims
- 35.3% were compensable (four or more lost workdays) versus 23.3% of all claims

- Average claims incidence rate (CIR) of 311.9 per 10,000 full-time equivalent employees (FTEs)
- Average compensable claims incidence rate of 109.1 per 10,000 FTEs
- Average of 163 lost time days per compensable claim
- 53.2% were claims for back disorders, 35.6% were for upper extremity disorders

The average number of State Fund NTST-MSD claims for the neck, back and upper extremity was 41,720 per year and averaged \$8,253 per claim.

There was a significant decrease in claims incidence rate for all claims, 4.7% per year over the study period for State Fund. The claims incidence rate for NTST-MSDs decreased slightly slower than for all claims (-4.5% per year) over the study period, primarily related to decreases in neck (-4.3% per year) and back (-5.1% per year). Although there was a statistically significant decrease in the NTST rate for upper extremities (-2.6% per year), it was significantly slower than the rate for non-upper extremity claims incidence ($p < 0.001$).

For the Self-Insured, coded data was available only for compensable closed claims (four or more lost workdays). There were 76,029 compensable closed NTST-MSD claims (8,448 per year) resulting in:

- Approximately 46% of all self-insured compensable closed claims
- Average compensable CIR of 150.0 per 10,000 FTEs

- 50.4% were back disorders and 35.9% were upper extremity disorders

The claims rate for all compensable claims decreased 2.4% per year ($p < 0.001$). The NTST-MSD compensable claims incidence rate for the Self-Insured decreased 2.9 % per year ($p < 0.001$) between 1993-2000, slightly more than for all other claims combined (-2.0% per year). The difference was not statistically significant.

We looked at several specific diagnostic codes (ICD-9) for NTST-MSDs in the State Fund and found:

For **sciatica**, there were 6,418 accepted claims and while infrequent (713 per year, CIR of 5.3 per 10,000 FTEs), they were extremely costly:

- \$53,838 per claim on average
- 78.2% were compensable with an average time loss of 412 days
- The CIR increased 2.3% per year over the study period ($p < 0.001$)

For **rotator cuff syndrome**, there were 19,739 accepted claims (2,193 per year) with:

- An average CIR of 16.2 per 10,000 FTEs
- Average cost of \$21,872 per claim
- 59.2% were compensable with an average time loss of 260 days
- The CIR increased 1.4% per year over the study period ($p < 0.001$)

For **epicondylitis**, there were 13,751 claims (1,528 per year) with:

- An average CIR of 11.3 per 10,000 FTEs
- Average cost of \$8,765 per claim
- 41.7% were compensable with an average time loss of 218 days

- The CIR decreased significantly less than all claims, 0.5% per year over the study period ($p < 0.01$)

For **carpal tunnel syndrome**, there were 27,812 claims (3,090 per year) with:

- An average CIR of 23.1 per 10,000 FTEs
- Average direct cost of \$16,404 per claim
- 63.2% were compensable
- Average time loss was 209 days
- The CIR decreased slightly less than all claims (-4.2% per year).

For **hand/wrist tendinitis**, there were 20,748 accepted claims (2,305) per year with:

- An average CIR of 17.2 per 10,000 FTEs
- Average cost of \$9,430 per claim
- 39.4% were compensable with an average time loss of 210 days
- The CIR decreased significantly over the study period, 2.3% per year on average ($p < 0.001$) and significantly less per year than all other claims combined ($p < 0.02$).

We used the Prevention Index (PI) to identify industries with the greatest impact of WMSDs. Industries are listed in rank order by the number of claims and by the rate of claims. The PI is the average of the two ranks for each industry. An industry therefore is high on the PI if it has a relatively high number of claims and a relatively high claims rate.

In the State Fund, Construction, Manufacturing and Transportation sectors ranked first, second and third on the PI. Among the Self-Insured, Transportation ranked first, followed by Retail Trade and Manufacturing, whereas Construction ranked 8th.

We calculated the PI for industries classified by their 3-digit SIC codes and also calculated a rate ratio for each industry by comparing the CIR for each industry with the overall state CIR. A rate ratio of 3, for example, means that the rate for that industry is 3 times the overall state rate.

The top 12 industries for combined State Fund and Self-Insured compensable NTST-MSDs were:

1. **Trucking & Courier Services**
(SIC 421) RR=3.0
2. **Air Transportation Scheduled & Air Courier Services** (SIC 451) RR=3.1
3. **Nursing & Personal Care Services**
(SIC 805) RR=2.6
4. **Masonry, Stonework, Tile Setting & Plastering** (SIC 174) RR=3.0
5. **General Building Contractors-Residential Buildings (SIC 152)** RR=2.3
6. **Roofing, Siding & Sheet Metal Work**
(SIC 176) RR=3.5
7. **Miscellaneous Special Trade Contractors**
(SIC 179) RR=2.0
8. **Local & Suburban Passenger Transportation** (SIC 411) RR=2.6
9. **Grocery Stores** (SIC 541) RR=1.8
10. **Landscape & Horticultural Services**
(SIC 078) RR=2.2
11. **Carpentry & Floor Work** (SIC 175) RR=2.5
12. **Services to Dwellings & Other Buildings** (SIC 734) RR=1.8

Since SIC codes are being replaced with NAICS (North American Industrial Classification System) codes, this is the

second year we present summary data by NAICS as well.

We also looked at industry by using the Washington Industrial Classification (WIC) codes. These codes are used for industrial insurance purposes and they code industries by similar processes and exposures. While in general the results are similar to the SIC analysis, there are some high-risk industries not otherwise identified.

Conclusions Non-traumatic soft tissue musculoskeletal disorders continue to be a large and costly problem in Washington State. The incidence rates for some NTST-MSDs are decreasing; in some cases, the rate is stable (sciatica, hand/wrist tendinitis) or increasing (rotator cuff syndrome, epicondylitis). The highest risks are in industries characterized by manual handling and forceful repetitive exertions. The contingent workforce appears to be at particularly high risk.

These overall estimates of the burden of NTST-MSDs are most likely an underestimate because the lower extremity is not included, there is evidence of under-reporting of these kinds of disorders in the literature, and the indirect costs to the employer, employee and society are not included.

Top 12 Industries for NTST-MSDs by Prevention Index and Washington Industrial Classification (WIC)

Rank	State Fund WIC	Rate Ratio	Self-Insured Compensable WIC	Rate Ratio
1	6108 Nursing Homes	3.8	1101 Parcel Package Delivery	5.1
2	0507 Roofing	5.1	6802 Airlines, Ground Crew	4.9
3	2903 Wood Products Mfg	3.0	1404 Bus Companies	3.4
4	0510 Wood Frame Bldg Const	2.8	0803 Cities – all other Emp. NOC	2.6
5	7114 Temp Help – Assembly	5.2	6104 Schools, all other Empl.	2.4
6	6907 Moving Companies	5.1	1102 Trucking, NOC	2.8
7	2105 Beer Distributors	3.7	7104 Temporary Help Admin. Staff	17.7
8	0518 Building Const NOC	2.8	6801 Airlines, Flight Crew	4.6
9	4305 Garbage Collection	3.8	2102 Warehouses, NOC	2.2
10	1002 Sawmills	3.2	6402 Supermarkets	1.9
11	0306 Plumbing	2.6	1405 Ambulance Service	6.4
12	1101 Parcel Package Delivery	2.4	6602 Janitorial Service	3.2

NOC = Not Otherwise Classified

All Other Employees = Groundskeeping, Maintenance, etc.

Temp Help – Administrative in Self-Insured also has temporary assembly and machine operator claim